



Designation: E1793 – 19

# Standard Practice for Preparation of Aluminum Alloy for Bonding in Foam and Beam Type Transportable Shelters<sup>1</sup>

This standard is issued under the fixed designation E1793; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon ( $\epsilon$ ) indicates an editorial change since the last revision or reapproval.

*This standard has been approved for use by agencies of the U.S. Department of Defense.*

## 1. Scope

1.1 This practice covers the preparation of clean, uniform surfaces of aluminum alloy suitable for formation of durable adhesive bonds in “foam and beam” panels used for the manufacture of tactical rigid wall shelters.

1.2 The values stated in SI units are to be regarded as standard. The values given in parentheses after SI units are provided for information only and are not considered standard.

1.3 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety, health, and environmental practices and determine the applicability of regulatory limitations prior to use.*

1.4 *This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.*

## 2. Referenced Documents

2.1 *ASTM Standards:*<sup>2</sup>

[E631 Terminology of Building Constructions](#)

[E864 Practice for Surface Preparation of Aluminum Alloys to Be Adhesively Bonded in Honeycomb Shelter Panels](#)  
[E1749 Terminology Relating to Rigid Wall Relocatable Shelters](#)

[E1794 Specification for Adhesive for Bonding Foam Cored Sandwich Panels \(200°F Elevated Humidity Service\), Type II Panels](#)

[E1800 Specification for Adhesive for Bonding Foam Cored Sandwich Panels \(160°F Elevated Humidity Service\), Type I Panels](#)

## 3. Terminology

3.1 *Definitions*—For definitions of general terms related to building construction used in this practice, refer to Terminology [E631](#), and for general terms related to rigid wall relocatable shelters, refer to Terminology [E1749](#).

3.2 *Definitions of Terms Specific to This Standard:*

3.2.1 *Type 1 panels*—panels used in the construction of foam and beam shelters designed for 71.1 °C (160 °F) elevated humidity service.

3.2.2 *Type 2 panels*—panels used in the construction of foam and beam shelters designed for 93.3 °C (200 °F) elevated humidity service.

3.2.3 *foam and beam panel*—a sandwich construction consisting of internal rigid foam core placed between structural beams (at specific distance(s) apart) and bonded to face sheets on both sides.

## 4. Significance and Use

4.1 Reproducible and durable adhesive bonds to aluminum alloys can be obtained reliably only through proper selection and careful control of the materials used and the steps in the bonding process. The preparation of the aluminum alloys to obtain clean, uniform surfaces with appropriate characteristics is a critical step. This practice describes how such surfaces can be obtained.

## 5. Apparatus

5.1 *General Processing*—Practice [E864](#), paragraph 5.1, applies.

## 6. Materials

6.1 *Water*—Practice [E864](#), paragraph 6.1, applies.

6.2 *Cleaning Solutions:*

6.2.1 *Type 1 Panels*—Parts shall be dip cleaned in a solution which is made up in accordance with the manufacturers’ recommendations. The only requirement for acceptability being that the conditions of [7.2.1](#) be met.

<sup>1</sup> This practice is under the jurisdiction of ASTM Committee [E06](#) on Performance of Buildings and is the direct responsibility of Subcommittee [E06.53](#) on Materials and Processes for Durable Rigidwall Relocatable Structures.

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<sup>2</sup> For referenced ASTM standards, visit the ASTM website, [www.astm.org](http://www.astm.org), or contact ASTM Customer Service at [service@astm.org](mailto:service@astm.org). For *Annual Book of ASTM Standards* volume information, refer to the standard’s Document Summary page on the ASTM website.